

CLAIMS

We claim:

1 1. A method for identifying similar bugs, comprising:
2 generating a database that contains database tokens that relate to identified bugs;
3 generating input tokens associated with a bug in question;
4 scanning the database for occurrences of the input tokens; and
5 determining an overall probability as to whether the identified bugs are the same as
6 the bug in question.

1 2. The method of claim 1, wherein generating a database comprises generating a
2 derivative database from a bug database that contains failing results files.

1 3. The method of claim 2, wherein generating a derivative database comprises
2 generating database tokens from character strings of the failing results files.

1 4. The method of claim 3, wherein generating database tokens comprises
2 generating tokens for character strings that are proximate to the term "error" in the failing
3 results files.

1 5. The method of claim 3, wherein generating database tokens comprises
2 generating tokens for character strings that comprise at least one of letters, numbers, and
3 underscores.

1 6. The method of claim 3, wherein generating database tokens further comprises
2 noting the number of times each token occurs relative to each bug of the database.

1 7. The method of claim 1, wherein generating input tokens comprises generating
2 tokens from character strings of an input failing results file of the bug in question.

1 8. The method of claim 1, wherein scanning the database comprises scanning the
2 tokens of the database to identify matches for the input tokens.

1 9. The method of claim 1, wherein scanning the database further comprises
2 identifying the number of occurrences of each input token in the database relative to each bug
3 of the database.

1 10. The method of claim 1, wherein determining the overall probability comprises
2 summing the total number of occurrences of each input token in the database and normalizing
3 the total number of occurrences of each input token as to each bug of the database.

1 11. The method of claim 10, wherein determining the overall probability further
2 comprises scaling normalized values that result from the normalizing to obtain scaled
3 probabilities as to each input token relative to each bug of the database.

1 12. The method of claim 11, wherein determining the overall probability further
2 comprises determining the standard deviance for each scaled probability and removing bug
3 tokens from consideration that are associated with an input token having a deviance below a
4 predetermined minimum deviance.

1 13. The method of claim 12, wherein determining the overall probability further
2 comprises determining the overall probability as to all bugs using the scaled probabilities
3 associated with those bugs.

1 14. The method of claim 13, wherein determining the overall probability as to all
2 bugs comprises applying Bayes' Theorem to the scaled probabilities to calculate the overall
3 probability for each bug as being the same bug as the bug in question.

1 15. A system for identifying similar bugs, comprising:
2 means for generating input tokens associated with a bug in question;
3 means for scanning a database that associates bugs with database tokens pertaining to
4 bugs for occurrences of the input tokens; and
5 means for determining an overall probability for each bug of the database of being the
6 same bug as the bug in question.

1 16. The system of claim 15, wherein the means for generating input tokens
2 comprise means for generating tokens from character strings of an input failing results file for
3 the bug in question.

1 17. The system of claim 15, wherein the means for scanning a database comprise
2 means for scanning the database tokens to identify matches for the input tokens and means
3 for identifying the number of occurrences of the input tokens in the database relative to each
4 potential bug.

1 18. The system of claim 15, wherein the means for determining the overall
2 probability comprise means for determining a probability that a bug is the same relative to
3 each database token associated with the bug.

1 19. The system of claim 18, wherein the means for determining the overall
2 probability further comprise means for applying Bayes' Theorem to those probabilities to
3 calculate the overall probability for each bug as being the bug in question.

1 20. The system of claim 15, further comprising means for generating the database
2 from failing results files contained in a bug database.

1 21. A system stored on a computer-readable medium, the system comprising:
2 logic configured to generate a database that associates bugs with tokens derived from
3 failing results files of the bugs;
4 logic configured to generate input tokens from an input that describes a bug in
5 question;
6 logic configured to identify the number of occurrences of each of the input tokens in
7 the database as per each potential bug; and
8 logic configured to determine an overall probability of each bug being the same as the
9 bug in question relative to the number of occurrences.

1 22. The system of claim 21, wherein the logic configured to generate input tokens
2 is configured to generate tokens from character strings of an input failing results file.

23. The system of claim 21, wherein the logic configured to determine the overall probability is configured to determine probabilities as to each bug relative to database tokens associated with those bugs.

24. The system of claim 23, wherein the logic configured to determine the overall probability is further configured to apply Bayes' Theorem to the determined probabilities to calculate the overall probability for each bug of being the bug in question.

25. A bug similarity system stored on a computer-readable medium, the system comprising:

a derivative database generator that is configured to generate a derivative database that contains a plurality of database tokens that are associated with identified bugs; and

an similarity calculator that is configured to:

generate input tokens from an input that describes a bug in question,

determine the number of occurrences of the input tokens in the derivative database relative to each bug,

determine the probability of each bug being the same bug as the bug in question relative to each input token, and

calculate an overall probability of each bug being the same bug as the bug in question using the determined probabilities.

26. The system of claim 25, wherein the derivative database generator is configured to generate the database tokens from character strings contained in failing results files of a bug database.

1 27. The system of claim 25, wherein the similarity calculator is configured to
2 calculate the overall probability by applying Bayes' Theorem to the determined probabilities.

1 28. A computer system, comprising:
2 a processing device; and
3 a memory that comprises a bug similarity system, the bug similarity system being
4 configured to generate a first set of tokens for each of several bugs, generate input tokens
5 from an input that describes a bug in question, determine the number of occurrences of the
6 input tokens in the first sets of tokens, determine the probability as to each of the bugs of
7 whether each bug is the same bug as the bug in question relative to each input token, and
8 calculate an overall probability as to whether the bugs are the same bug as the bug in question
9 using the determined probabilities.

1 29. The system of claim 28, wherein the bug similarity system is configured to
2 calculate the overall probability by applying Bayes' Theorem to the determined probabilities.